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In re application of:

Howard et al.

Application No.: 10/686,005

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For: SYSTEMS AND METHODS FOR RECOGNITION OF INDIVIDUALS USING MULTIPLE BIOMETRIC SEARCHES

Examiner: E. Leroux

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APPEAL BRIEF

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This Appeal Brief is in furtherance of the Notice of Appeal filed January 11, 2006. Please charge the fee required under 37 CFR 41.20 or any deficiency thereof to deposit account 50-2535 (see transmittal letter).

I REAL PARTY IN INTEREST

The real party in interest is Digimarc Corporation, by an assignment from the inventors recorded at Reel 015110, Frames 0841-0842, on March 19, 2004.

II RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-31 stand finally rejected and appealed.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

As set forth in claim 1, one aspect of the invention is a computerized system for determining whether a database contains an image substantially matching that of a given probe candidate **(e.g., Figs. 1 and 2)**. The system comprises an input device **(e.g., image/data capture 15, Fig. 1, paragraphs 67-68)** constructed and arranged to receive first and second biometric search templates **(e.g., facial and fingerprint templates, paragraphs 67-69 and 80-82)** associated with the probe candidate, the first biometric search template associated with a first type of biometric identifier **(e.g., face, paragraph 80)** and the second biometric search template associated with a second type of biometric identifier **(e.g., fingerprint, paragraph 80)**;

a first database comprising a plurality of searchable biometric templates **(e.g., database 35, Fig. 1, paragraphs 63, 65 and 82)**, the plurality of searchable biometric templates comprising a plurality of templates of the first type of biometric and a plurality of templates of the second type of biometric;

a first biometric search engine operably coupled to the input device and to the first database, the first biometric search engine adapted to search the first database of searchable biometric templates for a match to the first biometric template and return a first set of results **(e.g., 1st biometric search system, 31, Fig. 1, paragraphs 62-63 and 82)**;

a second biometric search engine operably coupled to the input device and to the first database, the second biometric search engine adapted to search the first database of searchable biometric templates for a match to the second biometric template and return a second set of results **(e.g., 2nd biometric search system, 25, Fig. 1, paragraphs 62-63)**;

a processor **(e.g., workstation 10, Fig. 1, Fig. 2, paragraphs 62, 65, 71-72, 75, 82-83)** in operable communication with the input device and the first and second biometric search engines, the processor programmed to compare the first and second sets of results to the first and second biometric templates to determine whether any result in the first set of results or the second set of results is a substantial match to either the first or second biometric search templates associated with the probe candidate **(e.g., first set of results at paragraph 82-83, and second set of results paragraph 89)** ; wherein the first set of results is used to direct the search of the second biometric search engine **(e.g., paragraphs 89, 90; see also paragraph 96 and Fig. 7, elements 490 and 500, in which a result from a first search is used as a probe for a subsequent search using a second biometric)**.

Dependent claim 3 recites that the processor is programmed to receive the first set of results from the first biometric search engine; and direct the second biometric search engine to search the first set of results using the second biometric template **(e.g., first set of results at paragraph 82-83, and second set of results paragraph 89)**.

Dependent claim 10 recites a second database in operable communication with the processor, the second database storing matches determined by the processor **(e.g., 23 in Fig. 1, paragraph 65)**.

Dependent claim 11 recites that the system is part of a system for creating identification documents and the processor is programmed to determine whether or not an identification document will be created based at least in part on the first and second results **(e.g., 39 in Fig. 1, paragraphs 70 and 104)**.

As recited in claim 14, another aspect of the invention is a computer-implemented method for determining whether a database contains any images that substantially match at least one image provided of an individual **(See, e.g., Fig. 3, and accompanying text)**. This method comprises:

receiving a probe data set, the probe data set comprising first and second biometric templates associated with the individual, the first biometric template associated with a different type of biometric than the second type of biometric template **(e.g., 40 Fig. 3, paragraphs 80-83)**;

searching a database of biometric templates using the first biometric template to retrieve a first results set **(e.g., 45, 55, Fig. 3, paragraphs 80-83)**;

selecting a first predetermined portion of the first results set **(e.g., 60, 65, Fig. 3, paragraphs 85-89)**;

searching the first predetermined portion of the first results set using the second biometric template to retrieve a second results set **(e.g., 70, Fig. 3, paragraphs 89-90)**;

selecting a second predetermined portion of the second results set **(e.g., 75, 80, Fig. 3, paragraphs 89-90)**; and

providing the second predetermined portion of the second results for comparison with the image provided of the individual **(e.g., 85, Fig. 3, paragraphs 89-90)**.

Dependent claim 15 recites that at least one of the first and second results sets is ranked in accordance with closeness of match to the first biometric template **(e.g., paragraphs 83 and 89)**.

As set forth in claim 17, another aspect of the invention is a computer-implemented method for determining whether a database contains any images that substantially match an image associated with an individual **(See, e.g., Fig. 6, and accompanying text)**. The method comprises:

(a) receiving an initial probe data set, the initial probe data set comprising a biometric template associated with the individual **(e.g., 300, Fig. 6, paragraphs 90-91 and 95-96)**;

(b) searching a database of biometric templates using the initial probe data set to retrieve a results set, the results set comprising biometric templates that satisfy a predetermined first criteria **(e.g., 305, Fig. 6, paragraph 91 and 95-96)**;

(c) selecting a first predetermined portion of the results set to be a refined probe data set **(e.g., 315, Fig. 6, paragraphs 91 and 95-96)**;

(d) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy the predetermined first criteria **(e.g., 350, Fig. 6, paragraphs 92 and 95-96)**;

(e) repeating (c) and (d) until a stop condition is reached **(e.g., 355, Fig. 6, paragraphs 92-93)**; and

(f) returning the last results set retrieved before the stop condition is reached as a final results set **(e.g., 360, Fig. 6, paragraph 93)**.

Dependent claim 20 recites that at least one of the initial probe data set and the results set further comprises a data record of additional data associated with each individual in the respective set, the additional data comprising at least one of biometric data, demographic data, variable data, data specific to an identification document associated with the individual, data indicating whether the data record has been previously associated with fraud, data indicating whether the data record has been previously notated **(e.g., paragraphs 93-95)**.

Dependent claim 21 further recites:

(g) determining, for each member of the results set, whether any of the additional data associated with that respective member of the results set is a substantial match to any of the additional data in the initial probe data set **(e.g., paragraphs 93-95)** .

Dependent claim 22 further recites:

(g) determining whether any result in the results set is substantially similar to one or more other results in the results set **(e.g., 315, Fig. 6, paragraphs 90, 91, 92, 95, 99 and 100)**;

(h) selecting the results in the results set that are substantially similar to each other to be a refined probe data set **(e.g., 315, 350, Fig. 6, paragraphs 90, 91, 92, 95, 99, and 100)**;

(i) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy a predetermined fourth criteria **(e.g., 355, Fig. 6, paragraphs 91, 92, 95 and 100)**;

(j) repeating (g) through (i) until a stop condition is reached **(e.g., 355, Fig. 6, paragraphs 91, 92 and 95)**; and

(k) returning the last results set retrieved before the stop condition is reached as a final results set for further investigation, the final results set comprising information about records in the database containing information that is substantially similar to information contained in other records in the database but which is not necessarily similar to information associated with the individual **(e.g., 360, Fig. 6, paragraphs 93, 95, 99 and 100)**.

As recited in claim 24, another aspect of the invention is a computer-implemented method for determining whether a database contains any images that substantially match those of an individual **(Fig. 7, paragraph 96, see also discussion of Fig. 6 at paragraphs 90-95, which is applicable to Fig. 7)**, comprising:

(a) receiving an initial probe data set, the first probe data set comprising first and second biometric templates associated with the individual **(e.g., 420, Fig. 7)**;

(b) searching a database of biometric templates using the first biometric template to retrieve a first results set, the first results set comprising a data set for each individual who has a biometric template that satisfies a predetermined first criteria, the data set comprising biometric template information that is searchable using the second biometric template **(e.g., 430, 440, Fig. 7)**;

(c) selecting a first predetermined portion of the first results set **(e.g., 450, Fig. 7)**;

(d) searching the first predetermined portion of the first results set using the second biometric template to retrieve a second results set, the second results set comprising a data set for each individual who has a biometric template that satisfies a predetermined second criteria, the data set comprising biometric template information that is searchable using the first and second biometric templates **(e.g., 490, Fig. 7)**;

(e) selecting a first predetermined portion of the results set to be a refined probe data set **(e.g., 540, Fig. 7)**;

(f) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy a predetermined third criteria **(e.g., 540, 550, Fig. 7)**;

(g) repeating (e) and (f) until a stop condition is reached **(e.g., 550, 510, Fig. 7)**; and

(h) returning the last results set retrieved before the stop condition is reached as a final results set **(e.g., 520, Fig. 7)**.

As recited in claim 26, another aspect of the invention is a computer-implemented method for determining whether a database contains any images that substantially match an image associated with an individual **(Fig. 10, paragraph 103, see also discussion of Fig. 6 at paragraphs 90-95, which is applicable to Figs. 7 and 10)**, comprising:

(a) receiving an initial probe data set, the first probe data set comprising at least one of a biometric template associated with the individual and non-biometric data associated with the individual **(e.g., 1100, Fig. 10, 300, Fig. 6, 420, Fig. 7)**;

(b) searching a database of biometric templates using the initial probe data set retrieve a results set, the results set comprising biometric templates that satisfy a predetermined first criteria **(e.g., 1100, 1120, Fig. 10)**;

(c) selecting a first predetermined portion of the results set to be a refined probe data set **(e.g., 130 Fig. 10)**;

(d) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy the predetermined first criteria **(e.g., 1140, Fig. 10)**;

(e) repeating (c) and (d) until a stop condition is reached **(e.g., 1195, Fig. 10)**; and

(f) returning the last results set retrieved before the stop condition is reached as a final results set **(e.g., 1170, 1180, Fig. 10)**.

As recited in claim 27, another aspect of the invention is a method for locating images in a database **(Fig. 10, paragraph 103, see also discussion of Fig. 6 at paragraphs 90-95, which is applicable to Figs. 7 and 10)**, comprising:

receiving a first probe set, the first probe set comprising a non-biometric data record **(e.g., 1100, Fig. 10, 300, Fig. 6, 420, Fig. 7)**;

searching a database of data records for data records that substantially match the non-biometric data record, the database of data records including, for each data record in the database, at least one biometric template associated with at least one image **(e.g., 1100, 1120, Fig. 10)**;

receiving a first results set from the search of the database, the results set comprising, for each substantial match to the non-biometric data record, a results set data record comprising a corresponding image and biometric template **(e.g., 1120 Fig. 10)**;

selecting at least one results set data record to use as a second probe set **(e.g., 130 Fig. 10)**; and

searching the database of data records for data records having biometric templates that substantially match the biometric record associated with the results set data record **(e.g., 1140, Fig. 10)**.

As set forth in claim 28, another aspect of the invention is a method for determining whether an individual should receive an identification document (e.g., Fig. 3 and Fig. 7), comprising:

receiving a probe set associated with the individual, the probe set comprising a first biometric template of a first type and a second biometric template of a second type **(e.g., 40 Fig. 3, paragraphs 80-83, see also, 420, Fig. 7)**;

performing a first search, the first search comprising searching a database of previously enrolled biometric templates for a biometric template that substantially matches the biometric template of the first type **(e.g., 45, 55, Fig. 3, paragraphs 80-83, 430, 440, Fig. 7)**;

performing a second search, the second search comprising searching the database of previously enrolled biometric templates for a biometric template that substantially matches the biometric template of the second type **(e.g., 70, Fig. 3, paragraphs 89-90, 490, Fig. 7)**; and analyzing the results of the first and second searches to determine whether any resulting matches indicate that the individual either is attempting to fraudulently obtain an identification document or has attempted to fraudulently obtain an identification document in the past **(e.g., 85, Fig. 3, paragraphs 89-90, 520 and 530, Fig. 7)**.

The above citations to the specification are not intended to be limiting and are only examples. Other and additional embodiments may also correspond to the claim elements.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-9, 11-14, 16-20, 23, 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pub. No. 2004/0036574 to Bostrom ("Bostrom").

Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bostrom in view of US Pub. No. 2003/0126121 to Khan ("Khan").

VII. ARGUMENT

Rejection of Claims 1-9, 11-14, 16-20, 23, and 27-31 over Bostrom

Claim 1

Bostrom teaches a system that searches face and fingerprint data separately to determine whether to grant access to a person. However, the face and fingerprint searches are completely independent, and therefore, Bostrom does not teach: "wherein the first set of results is used to direct the search of the second biometric search engine" as recited in combination with the other elements of claim 1.

The Examiner responds by contending that Bostrom's use of secondary biometric data when primary biometric data collected does not correspond to a locally stored primary biometric parameter reads on these elements of claim 1. However, the cited passage of paragraph 29 of Bostrom refers to use of the secondary biometric data after the collected primary biometric data fails to match stored primary biometric data. Since there is no match between the collected and stored primary data in this case in Bostrom, then there is no return of a "first set of results" as claimed. Further, since the cited approach in Bostrom provides no set of results based on the primary biometric data in this case, it fails to teach the use of the first set of results to direct the search of the second biometric search engine.

Claim 3

Bostrom fails to teach or suggest: "direct the second biometric search engine to search the first set of results using the second biometric template" as recited in claim 3.

Claim 11

Bostrom fails to disclose: "the system is part of a system for creating identification documents and the processor is programmed to determine whether or not an identification document will be created based at least in part on the first and second results" as recited in claim 11.

Claim 14

Bostrom fails to disclose "searching the first predetermined portion of the first results set using the second biometric template to retrieve a second results set" in combination with the other elements of claim 14.

While Bostrom describes a process of comparing collected biometric data with a subset of biometric data, this subset is not obtained by searching a database using a different biometric template to retrieve a first result set and selecting a predetermined portion of the first results set as claimed. In paragraph 49, Bostrom states: "Once this identification information is inputted, server 64 retrieves the subset of templates corresponding the purported identity affiliated with the inputted information." Bostrom provides no further teaching on how this subset of templates is retrieved, and specifically does not teach that it is retrieved by both searching to get a results set and selecting a predetermined portion of that results set.

Even assuming Bostrom teaches these elements, Bostrom does not teach the additional elements of selecting a predetermined portion of the second results set and providing it for comparison with the image provided by the individual as claimed. Therefore, Bostrom does not teach or suggest all of the elements of claim 14.

Claim 17

Bostrum fails to teach or suggest: "selecting a first predetermined portion of the results set to be a refined probe data set" in combination with the other elements of claim 17. The Examiner contends that Bostrom's subset referred to in paragraph 28 is used as a new probe. This is not correct. The subset is not a probe, but rather, it is the set of data that the collected primary biometric data is compared to in the process of determining whether the collected data corresponds to any of the stored biometric data in the subset. In particular, paragraph 49 of Bostrom states: "Sensed biometric parameter data collected by local biometric parameter sensing device 77 is then compared to the biometric parameter data stored in the subset of templates." Clearly, this subset of templates is not use as a refined probe data set to return a results set in a process of searching a database of biometric templates as claimed.

Claim 20

Bostrom fails to disclose: "at least one of the initial probe data set and the results set further comprises a data record of additional data associated with each individual in the respective set, the additional data comprising at least one of biometric data, demographic data, variable data, data specific to an identification document associated with the individual, data indicating whether the data record has been previously associated with fraud, data indicating whether the data record has been previously notated" as recited in combination with the other claim elements.

Claim 21

Bostrom fails to disclose: "(g) determining, for each member of the results set, whether any of the additional data associated with that respective member of the results set is a substantial match to any of the additional data in the initial probe data set" as recited in combination with the other claim elements.

Claim 22

Bostrom fails to disclose: "selecting the results in the results set that are substantially similar to each other to be a refined probe data set;

(i) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy a predetermined fourth criteria;" as recited in combination with the other claim elements.

Claim 27

Bostrom fails to teach or suggest: "receiving a first results set from the search of the database, the results set comprising, for each substantial match to the non-biometric data record, a results set data record comprising a corresponding image and biometric template;

selecting at least one results set data record to use as a second probe set" in combination with the elements of claim 27.

The Examiner's response refers to paragraphs 7 and 28 in Bostrom and appears to imply that Bostrom's subset corresponds to the claimed second probe set. Paragraph 28 refers to the use of identification data to get a subset of primary biometric data. However, Bostrom does not teach or even suggest selecting at least one of the subset to use as second probe set as claimed.

Claim 28

Bostrom fails to teach or suggest: "analyzing the results of the first and second searches to determine whether any resulting matches indicate that the individual either is attempting to fraudulently obtain an identification document or has attempted to fraudulently obtain an identification document in the past" in combination with the elements of claim 28.

Rejection of Claims 10 and 15 over Bostrom and Kahn

Claim 10

Dependent claim 10 stands rejected over a combination of Bostrom and Kahn. The combined teachings of Bostrum and Kahn fail to disclose the elements of claim 1, and therefore, fail to render dependent claim 10 obvious.

Claim 15

With respect to claim 15, Khan does not teach the elements of claim 14 that are missing from Bostrom. Therefore, the combination of Khan and Bostrom fail to render claim 15 obvious.

VIII. CONCLUSION

In view of the foregoing, the cited art does not disclose, teach or suggest all of the elements of the claims, and therefore, the claims are patentable over the cited art.

Respectfully submitted,

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CLAIMS APPENDIX

Appealed Claims

1. A computerized system for determining whether a database contains an image substantially matching that of a given probe candidate, the system comprising:

an input device constructed and arranged to receive first and second biometric search templates associated with the probe candidate, the first biometric search template associated with a first type of biometric identifier and the second biometric search template associated with a second type of biometric identifier;

a first database comprising a plurality of searchable biometric templates, the plurality of searchable biometric templates comprising a plurality of templates of the first type of biometric and a plurality of templates of the second type of biometric;

a first biometric search engine operably coupled to the input device and to the first database, the first biometric search engine adapted to search the first database of searchable biometric templates for a match to the first biometric template and return a first set of results;

a second biometric search engine operably coupled to the input device and to the first database, the second biometric search engine adapted to search the first database of searchable biometric templates for a match to the second biometric template and return a second set of results;

a processor in operable communication with the input device and the first and second biometric search engines, the processor programmed to compare the first and second sets of results to the first and second biometric templates to determine whether any result in the first set of results or the second set of results is a substantial match to either the first or second biometric search templates associated with the probe candidate; wherein the first set of results is used to direct the search of the second biometric search engine.

2. The system of claim 1, wherein each of the plurality of biometric templates in the first database comprise third and fourth templates, the third template being the first type of biometric and the fourth template being the second type of biometric, such that any result returned by either

the first or the second biometric search engine will comprise both a third biometric template and a fourth biometric template.

3. The system of claim 2, wherein the processor is programmed to:
receive the first set of results from the first biometric search engine; and
direct the second biometric search engine to search the first set of results using the second biometric template.

4. The system of claim 1 wherein the first and second types of biometric are each selected from the group consisting of face, fingerprint, thumbprint, hand print, iris, retina, hand geometry, finger geometry, thermogram, signature, voice, keystroke dynamic, odor, breath, and DNA.

5. The system of claim 1 wherein the first type of biometric is different than the second type of biometric.

6. The system of claim 1 wherein the first type of biometric is face and the second type of biometric is at least one of fingerprint, thumbprint, and iris.

7. The system of claim 1 further comprising a capture subsystem in operable communication with the input device, the capture subsystem constructed and arranged to capture raw biometric data used to create the first and second biometric templates.

8. The system of claim 1 wherein the capture subsystem is constructed and arranged to automatically locate raw biometric data in a digitized image.

9. The system of claim 7 wherein the processor is programmed to convert the raw biometric data to first and second biometric templates.

10. The system of claim 1 further comprising a second database in operable communication with the processor, the second database storing matches determined by the processor.

11. The system of claim 1 wherein the system is part of a system for creating identification documents and the processor is programmed to determine whether or not an identification document will be created based at least in part on the first and second results.

12. The system of claim 11 wherein the identification documents are at least one of drivers licenses, voter identification documents, national identification documents, passports, Visa documents, credit cards, and government-issued identification documents.

13. The system of claim 1 wherein the probe image comprises at least one of a photograph, digital image, sketch, mug shot, painting, illustration, and cartoon.

14. A computer-implemented method for determining whether a database contains any images that substantially match at least one image provided of an individual, comprising:

receiving a probe data set, the probe data set comprising first and second biometric templates associated with the individual, the first biometric template associated with a different type of biometric than the second type of biometric template;

searching a database of biometric templates using the first biometric template to retrieve a first results set;

selecting a first predetermined portion of the first results set;

searching the first predetermined portion of the first results set using the second biometric template to retrieve a second results set;

selecting a second predetermined portion of the second results set; and

providing the second predetermined portion of the second results for comparison with the image provided of the individual.

15. The method of claim 14, wherein at least one of the first and second results sets is ranked in accordance with closeness of match to the first biometric template.

16. The method of claim 14 wherein the first type of biometric is facial recognition and the second type of biometric is fingerprint.

17. A computer-implemented method for determining whether a database contains any images that substantially match an image associated with an individual, comprising:

(a) receiving an initial probe data set, the initial probe data set comprising a biometric template associated with the individual;

(b) searching a database of biometric templates using the initial probe data set to retrieve a results set, the results set comprising biometric templates that satisfy a predetermined first criteria;

(c) selecting a first predetermined portion of the results set to be a refined probe data set;

(d) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy the predetermined first criteria;

(e) repeating (c) and (d) until a stop condition is reached; and

(f) returning the last results set retrieved before the stop condition is reached as a final results set.

18. The method of claim 17, wherein the stop condition comprises at least one of:

the results set containing no biometric templates;

the results set containing only biometric templates that have been retrieved in at least one previous results set;

a substantial portion of the results set comprises biometric templates that have been retrieved in at least one previous results set;

steps (c) and (d) have been repeated a predetermined number of times; and

an instruction has been received to stop searching.

19. The method of claim 17 wherein the predetermined first criteria comprises a result in the set having a biometric template that matches the biometric template of the probe data set to a predetermined degree.

20. The method of claim 17 wherein at least one of the initial probe data set and the results set further comprises a data record of additional data associated with each individual in the respective set, the additional data comprising at least one of biometric data, demographic data, variable data, data specific to an identification document associated with the individual, data indicating whether the data record has been previously associated with fraud, data indicating whether the data record has been previously notated.

21. The method of claim 20 further comprising:
(g) determining, for each member of the results set, whether any of the additional data associated with that respective member of the results set is a substantial match to any of the additional data in the initial probe data set.

22. The method of claim 17, further comprising:
(g) determining whether any result in the results set is substantially similar to one or more other results in the results set;
(h) selecting the results in the results set that are substantially similar to each other to be a refined probe data set;
(i) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy a predetermined fourth criteria;
(j) repeating (g) through (i) until a stop condition is reached; and
(k) returning the last results set retrieved before the stop condition is reached as a final results set for further investigation, the final results set comprising information about records in the database containing information that is substantially similar to information contained in other records in the database but which is not necessarily similar to information associated with the individual.

23. The method of claim 17, wherein the method is used for at least one of fraud investigations, criminal investigations, identification document issuance, identification document

manufacture, addition of images to a computerized database, computerized dating, and computerized matchmaking.

24. A computer-implemented method for determining whether a database contains any images that substantially match those of an individual, comprising:

(a) receiving an initial probe data set, the first probe data set comprising first and second biometric templates associated with the individual;

(b) searching a database of biometric templates using the first biometric template to retrieve a first results set, the first results set comprising a data set for each individual who has a biometric template that satisfies a predetermined first criteria, the data set comprising biometric template information that is searchable using the second biometric template;

(c) selecting a first predetermined portion of the first results set;

(d) searching the first predetermined portion of the first results set using the second biometric template to retrieve a second results set, the second results set comprising a data set for each individual who has a biometric template that satisfies a predetermined second criteria, the data set comprising biometric template information that is searchable using the first and second biometric templates;

(e) selecting a first predetermined portion of the results set to be a refined probe data set;

(f) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy a predetermined third criteria;

(g) repeating (e) and (f) until a stop condition is reached; and

(h) returning the last results set retrieved before the stop condition is reached as a final results set.

25. The method of claim 24, wherein the stop condition comprises at least one of:

the results set containing no biometric templates;

the results set contains only biometric templates that have been retrieved in at least one previous results set;

a substantial portion of the results set comprises biometric templates that have been retrieved in at least one previous results set;

steps (e) and (f) have been repeated a predetermined number of times; and

an instruction has been received to stop searching.

26. A computer-implemented method for determining whether a database contains any images that substantially match an image associated with an individual, comprising:

(a) receiving an initial probe data set, the first probe data set comprising at least one of a biometric template associated with the individual and non-biometric data associated with the individual;

(b) searching a database of biometric templates using the initial probe data set retrieve a results set, the results set comprising biometric templates that satisfy a predetermined first criteria;

(c) selecting a first predetermined portion of the results set to be a refined probe data set;

(d) searching the database of biometric templates using the refined probe data set to return a results set, the results set comprising biometric templates that satisfy the predetermined first criteria;

(e) repeating (c) and (d) until a stop condition is reached; and

(f) returning the last results set retrieved before the stop condition is reached as a final results set.

27. A method for locating images in a database, comprising:

receiving a first probe set, the first probe set comprising a non-biometric data record;

searching a database of data records for data records that substantially match the non-biometric data record, the database of data records including, for each data record in the database, at least one biometric template associated with at least one image;

receiving a first results set from the search of the database, the results set comprising, for each substantial match to the non-biometric data record, a results set data record comprising a corresponding image and biometric template;

selecting at least one results set data record to use as a second probe set; and

searching the database of data records for data records having biometric templates that substantially match the biometric record associated with the results set data record.

28. A method for determining whether an individual should receive an identification document, comprising:

receiving a probe set associated with the individual, the probe set comprising a first biometric template of a first type and a second biometric template of a second type;

performing a first search, the first search comprising searching a database of previously enrolled biometric templates for a biometric template that substantially matches the biometric template of the first type;

performing a second search, the second search comprising searching the database of previously enrolled biometric templates for a biometric template that substantially matches the biometric template of the second type; and

analyzing the results of the first and second searches to determine whether any resulting matches indicate that the individual either is attempting to fraudulently obtain an identification document or has attempted to fraudulently obtain an identification document in the past.

29. The method of claim 28, further comprising denying the individual an identification document if, after analysis, matches are found during either the first search or the second search.

30. The method of claim 28 further comprising capturing first and second images of the individual, the first image capable of being converted into the first biometric template of a first type, the second image capable of being converted into the second biometric template of a second type.

31. The method of claim 28 wherein the first type of biometric is different than the second type of biometric.

EVIDENCE APPENDIX

There is no evidence appendix under 37 C.F.R. Section 41.37(c)(ix).

RELATED PROCEEDINGS APPENDIX

There are no related proceedings under 37 C.F.R. Section 41.37(c)(x).